

April 28, 2017



U.S. Department
of Transportation

East Building, PHH-30
1200 New Jersey Avenue S.E.
Washington, D.C. 20590

**Pipeline and Hazardous
Materials Safety Administration**

DOT-SP 20386

EXPIRATION DATE: 2019-03-31

(FOR RENEWAL, SEE 49 CFR 107.109)

1. GRANTEE: Spaceflight, Inc.
Seattle, WA
2. PURPOSE AND LIMITATION:
 - a. This special permit authorizes the transportation in commerce of low production lithium ion batteries contained in equipment that are not of a type proven to meet the requirements of the UN Manual of Tests and Criteria. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein. The most recent revision supersedes all previous revisions.
 - b. The safety analyses performed in the development of this special permit only considered the hazards and risks associated with the transportation in commerce.
 - c. No party status will be granted to this special permit.
 - d. This special permit serves as an approval under Special Provision A88 of the International Civil Aviation Organizations Technical Instructions (ICAO TI) and as a "Competent Authority Approval" as defined under 49 CFR § 107.1.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR 173.185(a) in that each lithium cell or battery must be of the type proven to meet the criteria in Part III, subsection 38.3 of the Un Manual of Tests and Criteria.

Tracking Number: 2016126666

5. BASIS: This special permit is based on the application of Spaceflight, Inc. dated December 9, 2016 submitted in accordance with § 107.105, the public proceeding thereon, and supplemental information dated April 24, 2017.
6. HAZARDOUS MATERIALS (49 CFR 172.101):

Hazardous Materials Description			
Proper Shipping Name	Hazard Class/ Division	Identification Number	Packing Group
Lithium ion batteries contained in equipment	9	UN3481	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING -

- (1) The Arkyd-6 Spacecraft containing the battery must be shipped within a hard plastic case with foam lining material within the case that meets test criteria for Pelican Case Model Number 7641 which requires a drop height of 1 m as specified in Spaceflight, Inc.'s supplemental information dated April 17, 2017 and on file with the Office of Hazardous Materials Safety Approvals and Permits Division (OHMSAPD).
- (2) The battery contained in equipment must be securely fastened and protected against short circuiting.
- (3) A package may not contain more than one (1) battery.
- (4) The net weight of battery contained in equipment within a package may not exceed 1 kg.

b. TESTING -

- (1) All lithium ion cells must be of a type that has passed all required tests as specified in the UN Manual of Tests and Criteria, 6th Revised Edition.

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- (2) All lithium ion batteries must be of a type that has passed all tests as specified in Spaceflight, Inc.'s application dated December 7, 2016, including the external short circuit test as demonstrated in the April 25, 2017 email, and on file with the OHMSAPD.

c. MARKING: Each package, or over pack if used, must be marked:

- (1) The special permit number, "DOT-SP 20386", in accordance with § 172.301(c); and
- (2) "Do not load or transport package if damaged".

d. OPERATIONAL CONTROLS -

- (1) The battery (with a maximum energy rating of 96 Wh) is comprised of E-One Moli Energy ICR-18650K cells and contained within the Arkyd-6 Spacecraft.
- (2) The battery must be equipped with an effective means of preventing dangerous reverse current flow when connected in parallel.
- (3) A battery kill switch must be installed to cut off current between the battery and the spacecraft in the event of inadvertent discharge.
- (4) The battery must be equipped with a battery management controller which limits maximum charge and maximum voltage.
- (5) The battery must contain internal protection to prevent external short-circuiting.
- (6) Cells must be equipped with burst discs for control of cell venting.

8. SPECIAL PROVISIONS:

a. A person who is not a holder of this special permit who receives a package covered by this special permit may reoffer it for transportation provided no modification or change is made to the package or its contents and it is reoffered for transportation in conformance with this special permit and the HMR.

- b. A current copy of this special permit must be maintained at each facility where the package is offered or reoffered for transportation.
9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle and cargo-only aircraft.
10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each aircraft, or motor vehicle used to transport packages covered by this special permit. The shipper must furnish a copy of this special permit to the air carrier before or at the time the shipment is tendered.
11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this special permit and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:
- o All terms and conditions prescribed in this special permit and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
 - o Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
 - o Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this special permit, including display of its number, when this special permit has expired or is otherwise no longer in effect.

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Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) – “The Hazardous Materials Safety and Security Reauthorization Act of 2005” (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term “exemption” to “special permit” and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. REPORTING REQUIREMENTS: Shipments or operations conducted under this special permit are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR §§ 171.15 - Immediate notice of certain hazardous materials incidents, and 171.16 - Detailed hazardous materials incident reports. In addition, the grantee(s) of this special permit must notify the Associate Administrator for Hazardous Materials Safety, in writing, of any incident involving a package, shipment or operation conducted under terms of this special permit.

Issued in Washington, D.C.:



for William Schoonover
Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Material Safety Administration, U.S. Department of Transportation, East Building PHH-30, 1200 New Jersey Avenue, Southeast, Washington, D.C. 20590.

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm. Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: SH/TG